



# Victorian Certificate of Education 2011

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

## STUDENT NUMBER

Letter

Figures

Words

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |
|--|
|  |
|--|

# PSYCHOLOGY

## Written examination 1

Wednesday 15 June 2011

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

## QUESTION AND ANSWER BOOK

### Structure of book

| Section | Number of questions | Number of questions to be answered | Number of marks |
|---------|---------------------|------------------------------------|-----------------|
| A       | 45                  | 45                                 | 45              |
| B       | 9                   | 9                                  | 31              |
| C       | 1                   | 1                                  | 15              |
|         |                     |                                    | Total 91        |

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, rulers and one scientific calculator.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.

### Materials supplied

- Question and answer book of 20 pages.
- Answer sheet for multiple-choice questions.

### Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

### At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

**Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.**

**SECTION A – Multiple-choice questions****Instructions for Section A**

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

**Question 1**

René Descartes' theory of consciousness as a psychological construct relies on the concept that

- A. the mind and body are separate entities.
- B. interactions between brain neurons influence our consciousness.
- C. consciousness is an everchanging stream of ideas and occurs only in the brain.
- D. consciousness is produced by the soul and is located in organs such as the liver and heart.

**Question 2**

Hillary has been knitting for twenty years. She is able to knit quickly and accurately while she watches television. Her granddaughter, who is just learning how to knit, makes many mistakes if she tries to knit and watch television at the same time.

This is because

- A. Hillary is in an altered state of consciousness when she is knitting.
- B. knitting is a controlled process for Hillary and an automatic process for her granddaughter.
- C. Hillary is able to divide her attention while her granddaughter is unable to divide her attention.
- D. Hillary is able to use selective attention to knit while her granddaughter needs to use divided attention.

**Question 3**

Paulette meditates to reduce her stress levels.

Evidence that Paulette is in a meditative state could include

- A. reduced heart rate, alpha waves, lowered temperature.
- B. increased heart rate, increased breathing rate, beta waves.
- C. reduced heart rate, beta waves, low galvanic skin response.
- D. alpha and beta waves, reduced breathing rate, increased muscle activity.

**Question 4**

Physiological measures such as those in Question 3 are useful for measuring an individual's state of consciousness.

However, it should not be assumed that a person is in an altered state of consciousness on the basis of these measures alone because

- A. these measures are not as accurate as self report.
- B. an increase or decrease in heart rate is possible as a result of meditation.
- C. physiological measures are subjective measures of a person's state of consciousness.
- D. changes in physiological responses may be due to a range of reasons other than a person's state of consciousness.

**SECTION A – continued**

NO WRITING ALLOWED IN THIS AREA

*Use the following information to answer Questions 5 and 6.*

Petra was completing her psychology examination.

**Question 5**

At the beginning of the examination, various thoughts were active in her mind such as how to fill in the multiple-choice answers, whether she should attempt the short answer questions first, and that the room was a little cold.

Petra's state of consciousness is best described as

- A. dualism.
- B. selective attention.
- C. normal waking consciousness.
- D. an altered state of consciousness.

**Question 6**

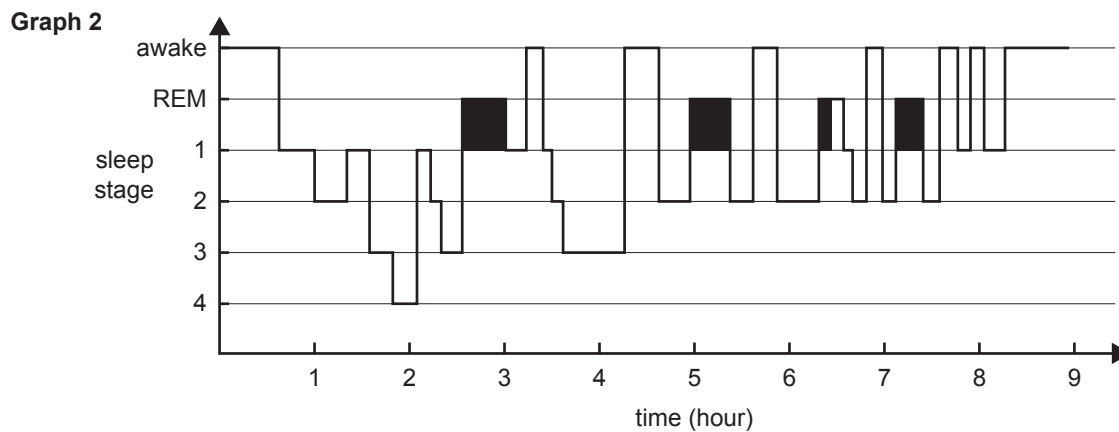
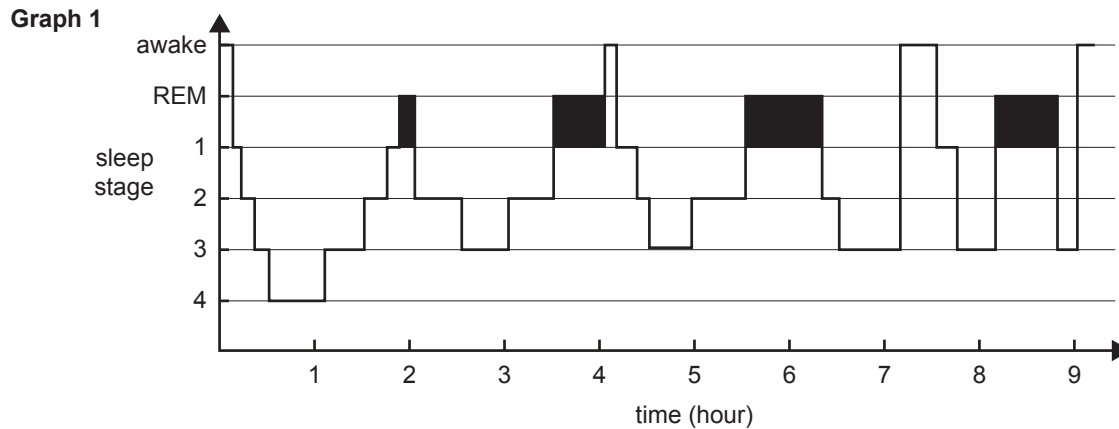
Petra's thoughts then began to drift onto other things while completing the examination, such as what she will wear at her school formal, what everyone else will be wearing, whether the boy she likes will notice her.

The term that most accurately explains Petra's experience at this time is

- A. daydreaming.
- B. meditative state.
- C. content limitations.
- D. automatic processing.

Use the following graphs to answer Questions 7 and 8.

The following graphs show the typical sleep cycles for two distinct age groups.



[http://www.luciddreamexplorers.com/images/sleep\\_cycle\\_different\\_ages.jpg](http://www.luciddreamexplorers.com/images/sleep_cycle_different_ages.jpg)

### Question 7

The typical sleep cycles represented in Graphs 1 and 2, in order, are

- A. infant, adolescent.
- B. infant, elderly person.
- C. elderly person, infant.
- D. adolescent, elderly person.

### Question 8

According to the restorative theory of sleep, the sleeper in Graph 1 spends more time in REM sleep than the sleeper in Graph 2 because

- A. they are experiencing REM rebound.
- B. their sleep/wake cycle has shifted forward due to their age.
- C. neural connections in the brain are strengthened during sleep.
- D. experiencing more deep sleep at night enhances the chance of survival.

**Question 9**

Which of the following requires the least total amount of sleep?

- A. an infant
- B. an adolescent
- C. an elderly person
- D. All sleepers require the same amount of sleep regardless of age.

**Question 10**

David, a professional footballer, is physically exhausted after playing in all four quarters of the Grand Final.

According to the restorative theory of sleep, in which stages of sleep would David be most likely to spend **more** time in the two nights sleep following the Grand Final?

- A. rapid eye movement (REM)
- B. non-rapid eye movement (NREM) stage 1
- C. non-rapid eye movement (NREM) stages 1 and 3
- D. non-rapid eye movement (NREM) stages 3 and 4

**Question 11**

It is likely that you will be difficult to wake if you are woken a couple of hours into your night's sleep because you

- A. are likely to be in non-rapid eye movement (NREM) stages 3 and 4 sleep.
- B. will not have completed more than one sleep cycle.
- C. are likely to be in rapid eye movement (REM) sleep.
- D. are likely to be in non-rapid eye movement (NREM) stage 1 sleep.

**Question 12**

Researchers have found it difficult to generalise the results of studies on humans which investigate prolonged total sleep deprivation because

- A. these studies often rely only on self report.
- B. the effects of total sleep deprivation are not reversible.
- C. studying sleep deprivation often depends on convenience sampling.
- D. an electroencephalograph (EEG) cannot tell if someone has a microsleep.

**Question 13**

Jason was taking part in a study of the sleep patterns of adolescents. From the ages of 11 to 24, he was required to keep a sleep diary for one month each year. In the sleep diary he described how tired he felt during the day. In the same month he also wore an electronic device that recorded the amount of time he spent asleep.

The researcher was collecting

- A. correlational data.
- B. only qualitative data.
- C. only quantitative data.
- D. qualitative and quantitative data.

**Question 14**

The outer layer of the two cerebral hemispheres of the brain is the

- A. skull.
- B. cerebellum.
- C. cerebral cortex.
- D. corpus callosum.

**Question 15**

When threatened by a dog, a cat's salivary glands inhibit secretion of saliva and its fur stands on end.

These changes to the cat's functioning are activated by the

- A. spinal cord.
- B. somatic nervous system.
- C. sympathetic nervous system.
- D. parasympathetic nervous system.

**Question 16**

The image below is from a computed tomography (CT) scan of an individual who has a tumour in a particular area of their cerebral cortex.



Because of this tumour, this individual is most likely to have difficulty

- A. understanding spoken language.
- B. recognising faces, songs, people and pictures.
- C. processing sensory stimuli on the left side of their body.
- D. with attention, planning, emotional control, and experience changes to their personality.

**Question 17**

When a person is asleep

- A. there is increased blood flow into the thalamus.
- B. the reticular activating system shows a high level of activity on a brain scan.
- C. the neurons in the reticular activating system are less active than when the person is awake.
- D. the content of a person's consciousness is more limited and restricted than when they are in normal waking consciousness.

*Use the following information to answer Questions 18, 19 and 20.*

Sally sustained a serious brain injury and since then has been ignoring objects and information in the left side of her world, a condition known as spatial neglect. Her doctor asks her if she is willing to participate in some non-invasive research on her brain for a possible research project.

**Question 18**

To obtain the clearest picture of the area of her brain that has been damaged, Sally's doctor should refer her for

- A. direct brain stimulation (DBS).
- B. magnetic resonance imaging (MRI).
- C. positron emission tomography (PET).
- D. transcranial magnetic stimulation (TMS).

**Question 19**

Given Sally's condition, the area of her brain most likely affected is the

- A. right frontal lobe.
- B. right parietal lobe.
- C. left primary visual cortex.
- D. left primary somatosensory cortex.

**Question 20**

Before Sally's doctor carries out the research he must

- A. pay Sally to participate in the research.
- B. publish his abstract in a research journal.
- C. get approval from the relevant ethics committee.
- D. debrief Sally about what will be involved in the research.

**Question 21**

Hemispheric specialisation can be studied using a variety of brain research methods.

Of the following, the most invasive method is

- A. direct brain stimulation (DBS).
- B. positron emission tomography (PET).
- C. transcranial magnetic stimulation (TMS).
- D. single photon emission computed tomography (SPECT).

**Question 22**

An advantage of PET compared to SPECT is that PET

- A. provides more detailed images.
- B. does not use a radioactive tracer.
- C. shows brain function whereas SPECT only shows brain structure.
- D. is able to form a three-dimensional computer-enhanced image that can be viewed from different angles whereas SPECT cannot.

**Question 23**

Studies into motion after-effect suggest that it is mainly caused by

- A. neural adaptation.
- B. change blindness.
- C. selective attention.
- D. dysfunctioning of neurons in the motor cortex.

**Question 24**

Kandel studied the process of memory formation in the *Aplysia* by repeatedly stimulating the *Aplysia*'s siphon. The findings of this research included

- A. no observed changes in the neurons of the *Aplysia*.
- B. a decrease in the level of neurotransmitters in the *Aplysia*.
- C. changes in the *Aplysia*'s neurons involved in the formation of memory.
- D. the development of a series of complex behaviours in response to the siphon stimulation.

**Question 25**

Damage to the thalamus may result in

- A. spatial neglect.
- B. reduced ability to coordinate motor responses.
- C. increased ability to direct attention to incoming sensory stimuli.
- D. difficulty directing incoming sensory information to the relevant part of the cortex for interpretation.

**Question 26**

The hippocampus is required for the consolidation of

- A. short-term memories.
- B. procedural memories.
- C. long-term declarative memories.
- D. the emotional aspects of memories.

**Question 27**

David, a 23-year-old university student, suffered from a brain injury and sustained damage to his amygdala. David is most likely to experience difficulty with

- A. implicit memory.
- B. explicit memory.
- C. semantic memory.
- D. sensory memory.

**Question 28**

Richard has just switched off his alarm clock yet he can still hear the sound of it ringing.

This effect is due to

- A. episodic memory.
- B. working memory.
- C. iconic memory.
- D. echoic memory.



**Question 29**

Leo, a 30-year-old man, recently sustained damage to his hippocampus.

Since then, Leo is likely to be unable to remember

- A. how to ride a bike.
- B. how to tie his shoelaces.
- C. the route to his parents' house.
- D. current events from the newspaper.

*Use the following information to answer Questions 30 and 31.*

Dr Unglik conducted a study on the effectiveness of different types of encoding. Participants were divided into three groups, and each group was presented with the same list of twenty words in a fixed order and was given 90 seconds to memorise the words using one of the following encoding strategies.

**Group one** memorised words by remembering whether each of the words was written in upper or lower case.

**Group two** memorised the words by pairing each word with a rhyming word.

**Group three** memorised the words by putting them into meaningful sentences.

Immediately following the 90-second study period, Dr Unglik asked the participants to use free recall to say the words they could remember from the word list.

**Question 30**

According to Craik and Lockhart's levels of processing model of memory, the type of encoding for each of the groups in Dr Unglik's study was

- A. Group one: phonemic (acoustic); Group two: structural (visual); Group three: semantic.
- B. Group one: structural (visual); Group two: phonemic (acoustic); Group three: semantic.
- C. Group one: semantic; Group two: phonemic (acoustic); Group three: elaborative.
- D. Group one: phonemic (acoustic); Group two: elaborative; Group three: semantic.

**Question 31**

Dr Unglik plotted recall performance for each word according to the order in which it had been presented in the study list.

The most likely result of Dr Unglik's study was that for all three groups he found that the word recall was

- A. the same for words at the start, in the middle and at the end of the study list.
- B. better for words at the start and at the end of the study list than for those in the middle.
- C. better for words at the end of the study list than for words at the start and in the middle.
- D. better for words at the start of the study list than for words in the middle and at the end.

**Question 32**

Studies comparing the memory performance of young and elderly people on recall and recognition tasks typically show that young people perform

- A. better on both recall and recognition tasks than elderly people.
- B. the same as elderly people on both recall and recognition tasks.
- C. better on recognition tasks; however, the same as elderly people on recall tasks.
- D. better on recall tasks; however, the same as elderly people on recognition tasks.

**Question 33**

The inability to retrieve previously stored information is best described as

- A. forgetting.
- B. unconsciousness.
- C. proactive amnesia.
- D. consolidation failure.

**Question 34**

When Ebbinghaus conducted his studies of forgetting, he used nonsense syllables rather than real words

- A. because they are easier to learn.
- B. to prevent the use of maintenance rehearsal.
- C. to reduce the potential influence of past experience with the word meanings.
- D. because the work of previous researchers had shown that nonsense syllables work best in this type of study.

*Use the following information to answer Questions 35–37.*

Rohan and Lisa were studying for a Japanese examination. Lisa memorised her Japanese vocabulary over two months by associating each new word with words and topics that she had previously learnt. Rohan learnt the Japanese vocabulary during the last few days before the examination by repeating each word over and over. Lisa's examination result was much better than Rohan's.

**Question 35**

It is likely that Lisa performed better than Rohan on the examination because

- A. she probably did not use mnemonic devices.
- B. Rohan made the task much more difficult through elaboration.
- C. she used elaborative rehearsal which made the new vocabulary more meaningful.
- D. maintenance rehearsal is a very effective method for transferring information to long-term memory.

**Question 36**

Another reason that Lisa performed better may be because her rate of forgetting the vocabulary was

- A. much faster than Rohan's.
- B. slower than Rohan's, because she spent two months learning the material.
- C. the same as Rohan's, but she retained a greater percentage of the vocabulary.
- D. much slower than Rohan's because she associated the new words with words already in her memory.

**Question 37**

To test Lisa's and Rohan's memories of the vocabulary, the most sensitive measure of retention would be to get them to

- A. sing a song containing the words.
- B. identify the correct words from a list also containing other Japanese vocabulary.
- C. write down all the words from the list they could remember without the use of cues.
- D. write down as many of the words as possible when given cues such as the first or last sound in each word.

*Use the following information to answer Questions 38 and 39.*

Jamie, who is 26 years old, met a former primary school classmate at the pizza shop but could not remember his name. Jamie felt sure that the man's name started with V and that he would eventually remember it.

**Question 38**

Jamie's experience is best described as

- A. repression.
- B. cued recall.
- C. proactive interference.
- D. tip-of-the-tongue phenomenon.

**Question 39**

Which theory of forgetting provides the best explanation for Jamie's inability to recall his former classmate's name?

- A. retrieval failure
- B. semantic network
- C. motivated forgetting
- D. lack of consolidation

*Use the following information to answer Questions 40 and 41.*

Frank was concerned about remembering, in the correct order, all the items he had to discuss during his work presentation. He made up a short and funny story which included each key word in order and then used this to assist recall when he presented the speech.

**Question 40**

The mnemonic device used by Frank was

- A. an acrostic.
- B. method of loci.
- C. peg-word method.
- D. narrative chaining.

**Question 41**

The mnemonic device used by Frank would have assisted his memory by

- A. allowing him to rehearse information in short-term memory.
- B. adding state-dependent cues to the material to be learned and retrieved.
- C. decreasing the amount and complexity of information to be learned and retrieved.
- D. elaborating the information and enhancing its organisation in long-term memory.

**Question 42**

Research by Loftus indicated that the memories of eyewitnesses of significant events are usually

- A. reconstructions of the event witnessed.
- B. unrelated to the details of the event witnessed.
- C. about 50% accurate for details of the event witnessed.
- D. like a photograph, exact replicas of the event witnessed.

**Question 43**

‘ANZAC’ helps us remember the Australian and New Zealand Army Corps, whereas ‘every good boy deserves fruit’ helps us to remember the musical notes E, G, B, D, F in their correct order.

These two mnemonic devices are an

- A. acronym and acrostic.
- B. acrostic and peg-word method.
- C. acrostic and narrative chaining.
- D. acronym and narrative chaining.

**Question 44**

When Susan was seven, she broke her arm and experienced extreme pain. As an adult, Susan tried to forget this traumatic incident.

According to Freud, the type of forgetting experienced by Susan is an example of

- A. repression.
- B. suppression.
- C. retroactive amnesia.
- D. decay of the memory trace over time.

**Question 45**

A psychologist is developing a new instrument to measure adolescent attitudes towards the recommended amount of sleep for adolescents. She is trialling the instrument with 100 adolescents.

To test the internal consistency of her new instrument, the psychologist would have to ensure that

- A. each item is measuring what the instrument is supposed to measure.
- B. the instrument produces the same results each time it is administered.
- C. there is a low correlation between scores on odd and even numbered items.
- D. there is a high correlation between scores on odd and even numbered items.

NO WRITING ALLOWED IN THIS AREA

**SECTION B – Short answer questions****Instructions for Section B**

Answer **all** questions in the spaces provided. Write using black or blue pen.

**Question 1**

You are conducting research in a sleep laboratory, investigating how much time the average adult person spends in REM sleep. In order to detect whether a person is in REM sleep you could use an electrooculargraph (EOG) and an electroencephalograph (EEG).

Explain how each device may indicate that the person is in REM sleep.

Electrooculargraph (EOG) \_\_\_\_\_

---



---



---

Electroencephalograph (EEG) \_\_\_\_\_

---



---



---

4 marks

**Question 2**

Dr Alsop was a neuropsychologist who worked at a head injury clinic. Dr Alsop needed to determine whether one of his patients suffered from Broca's aphasia or Wernicke's aphasia.

a. What is aphasia?

---



---

1 mark

b. Explain how functional Magnetic Resonance Imaging (fMRI) could distinguish Broca's aphasia from Wernicke's aphasia.

---



---



---



---



---

2 marks

**SECTION B – continued**  
**TURN OVER**

NO WRITING ALLOWED IN THIS AREA

**Question 3**

A psychology class is preparing for a test. Their teacher suggests that they study in the same room and under the same conditions as when they will do the test.

Explain how this type of preparation might assist the students' performance in the psychology test.

---

---

---

---

---

---

2 marks

**Question 4**

Describe one finding of Sperry and Gazzaniga's split brain studies and explain how it has contributed to our understanding of the interaction between cognitive processes and the structure of the brain.

---

---

---

---

---

---

---

---

---

---

---

---

3 marks

**Question 5**

A school principal wanted to work out which two languages should be taught at her school. The school already taught French so she wanted to choose the second language from either Italian or Chinese. She wanted to introduce a language that would not interfere with students' retention of French. The school principal knew that Italian is a more similar language to French than Chinese which is a very different language from French. She divided the Year 7 students in her school into two groups and followed the procedure set out in the table below to find out what effect the study of Italian and Chinese may have on the students' retention of French.

|                |              |               |             |
|----------------|--------------|---------------|-------------|
| <b>Group A</b> | Learn French | Learn Italian | Test French |
| <b>Group B</b> | Learn French | Learn Chinese | Test French |

- a. Identify and define the type of interference being tested by Groups A and B.

Group A \_\_\_\_\_

\_\_\_\_\_

Group B \_\_\_\_\_

\_\_\_\_\_

2 marks

- b. With reference to interference theory, is the principal more likely to choose Italian or Chinese as the second language in her school, and why?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 marks

**Question 6**

A researcher wanted to investigate whether chronic sleep deprivation causes obesity. In particular, she planned to test whether reduced sleep would result in a significant increase in body weight at the end of 12 months.

The researcher planned to select 100 healthy participants between the ages of 18 and 40 and record their Body Mass Index. She decided she would allocate them equally to either the experimental group or to the control group.

The experimental group would have their sleep time reduced to five hours per night while the control group would maintain a sleep time of 7–10 hours per night.

a. State a possible research hypothesis for this study.

---

---

---

---

---

---

3 marks

b. Name the research design used by the researcher.

---

1 mark

c. Identify two other possible effects of long-term chronic sleep deprivation.

---

---

---

---

2 marks

**Question 7**

A man working at the market weighed each customer’s bag of potatoes and then used mental arithmetic to calculate how much each customer had to pay.

With reference to this scenario, explain the role of the central executive and the episodic buffer in Baddeley and Hitch’s model of working memory.

---

---

---

---

2 marks



**Question 8**

A researcher was interested in exploring the potential for eyewitness testimonies to be manipulated through leading questioning. To investigate this issue, he had two groups (Group A and Group B), each with 50 participants, watch a film showing a fight between two gangs. One gang was dressed in blue and the other in red. The film showed an equal number of aggressive acts committed by the red and blue gangs.

After watching the film, participants in Group A were asked a series of leading questions such as ‘Why do you think the red gang was more aggressive than the blue gang?’ Group B was asked neutral questions such as ‘What do you remember about the fight?’ After the questions had been completed, the researcher asked participants in both groups to estimate the number of aggressive acts performed by each gang. The significance level for the research was set at  $p < 0.05$ .

The results showed that participants in Group A, on average, estimated that the red gang committed more aggressive acts than the blue gang, whereas those in Group B, on average, estimated an equal number of aggressive acts committed by both gangs. A statistical test comparing the mean difference estimates for Groups A and B indicated that  $p = 0.03$ .

- a. What is meant by  $p = 0.03$ ?

---

---

1 mark

- b. What conclusion could the researcher draw from these results?

---

---

---

---

---

2 marks

- c. How would Loftus’s research into the manipulation of eyewitness accounts help to explain these results?

---

---

---

---

2 marks

**Question 9**

Change blindness represents a potential problem for air traffic controllers. Air traffic controllers must monitor the movements and locations of multiple aircraft that are represented as intermittently flashing dots on the radar screen.

- a. Define change blindness.

---

---

---

1 mark

- b. State when air traffic controllers would be most likely to experience change blindness.

---

---

---

1 mark

**END OF SECTION B****NO WRITING ALLOWED IN THIS AREA**

**NO WRITING ALLOWED IN THIS AREA**

Answer the question in the space provided. Write using black or blue pen.  
Your response may include diagrams, charts and tables.

[illegible]

**SECTION C – continued**  
**TURN OVER**

**NO WRITING ALLOWED IN THIS AREA**

